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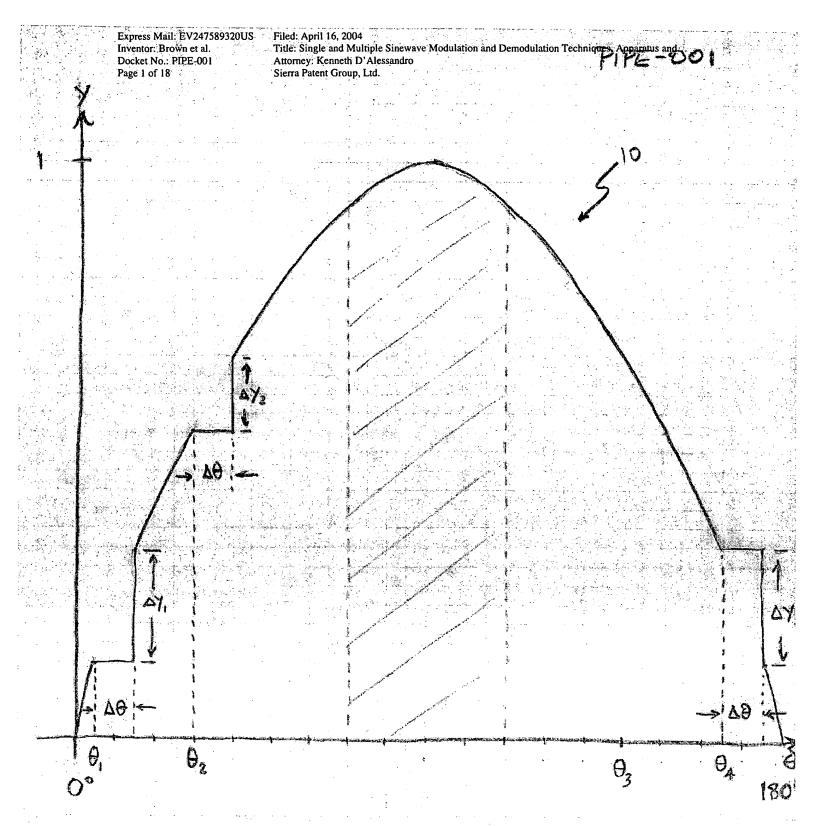
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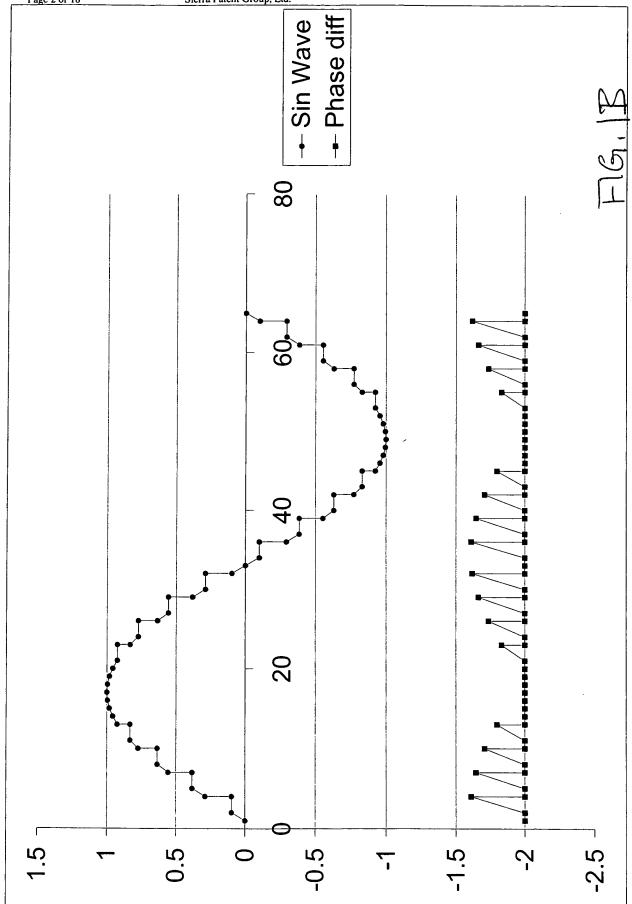
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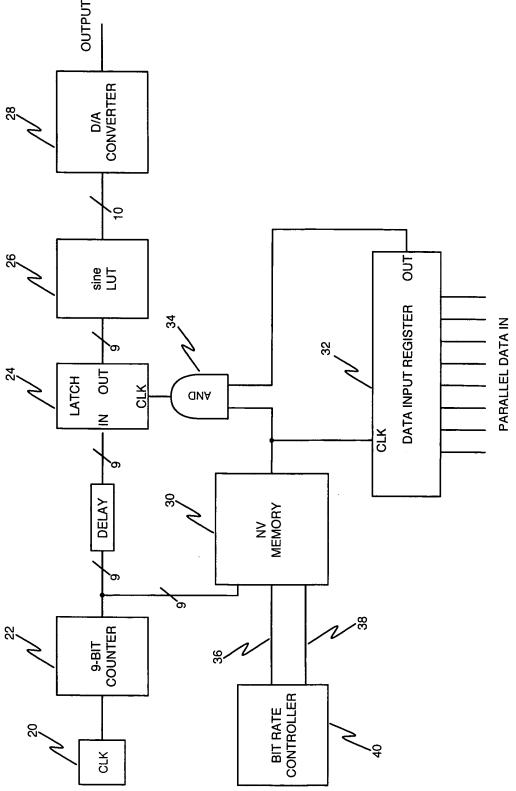
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Express Mail: EV247589320US Inventor: Brown et al. Docket No.: PIPE-001 Page 3 of 18 Filed: April 16, 2004
Title: Single and Multiple Sinewave Modulation and Demodulation Techniques, Apparatus and...
Attorney: Kenneth D'Alessandro
Sierra Patent Group, Ltd. David Loar 3/15/2004 Frame 40ms 16 bits/cycle 1456 bits/Frame = 36400 bits/sec 14 cycles/Frame = 224 bits/Frame 15 cycles/Frame = 240 bits/Frame 16 cycles/Frame = 256 bits/Frame 10 cycles/Frame = 160 bits/Frame 11 cycles/Frame = 176 bits/Frame 13 cycles/Frame = 208 bits/Frame 12 cycles/Frame = 192 bits/Frame

Page 4 of 18



Docket No.: PIPE-001 Page 5 of 18 Filed: April 16, 2004

Title: Single and Multiple Sinewave Modulation and Demodulation Techniques, Apparatus and...

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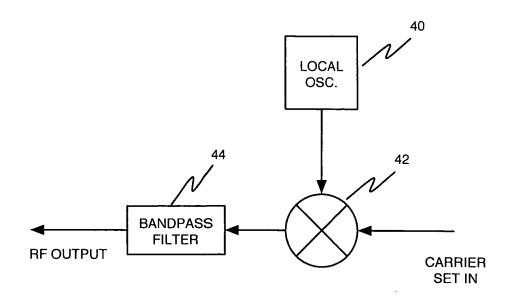


FIGURE 4A

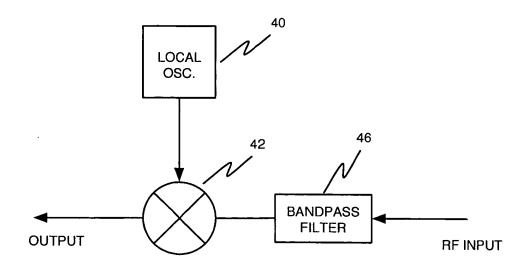
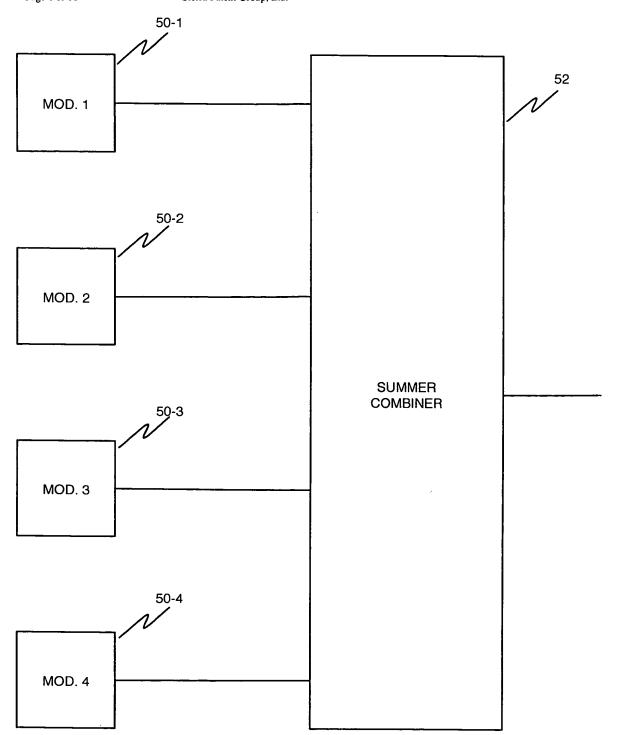


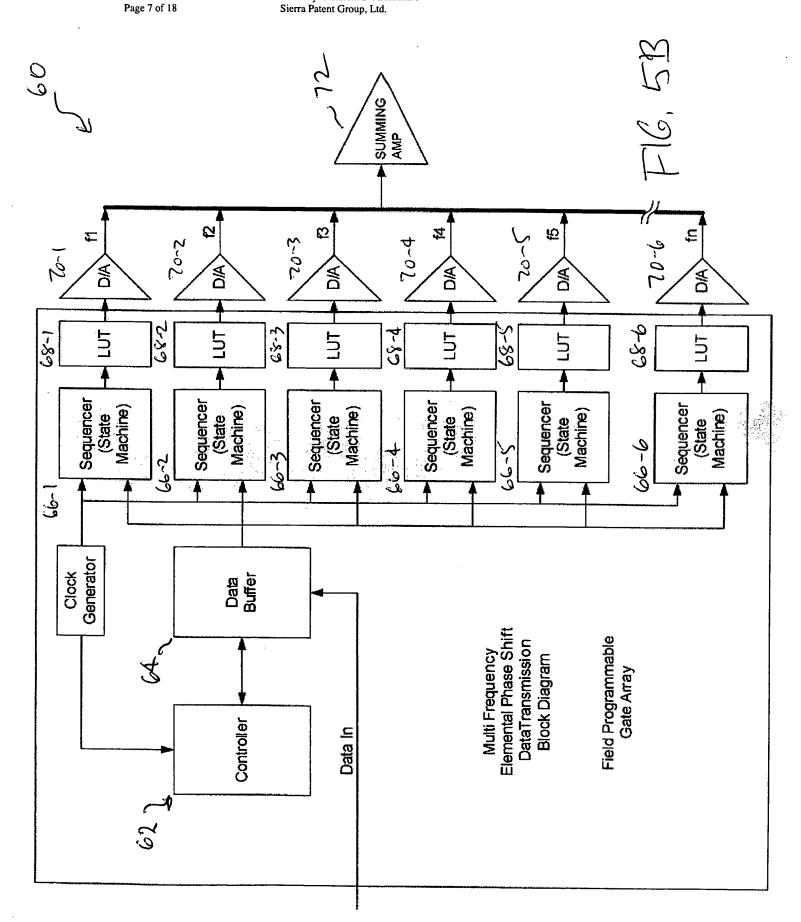
FIGURE 4B

Docket No.: PIPE-001 Page 6 of 18



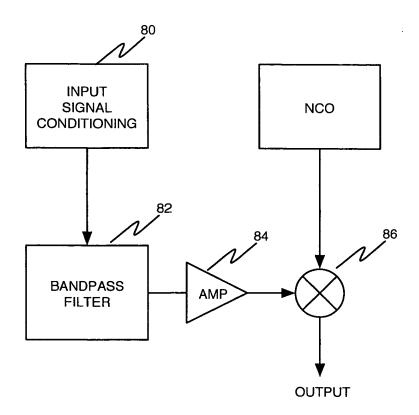
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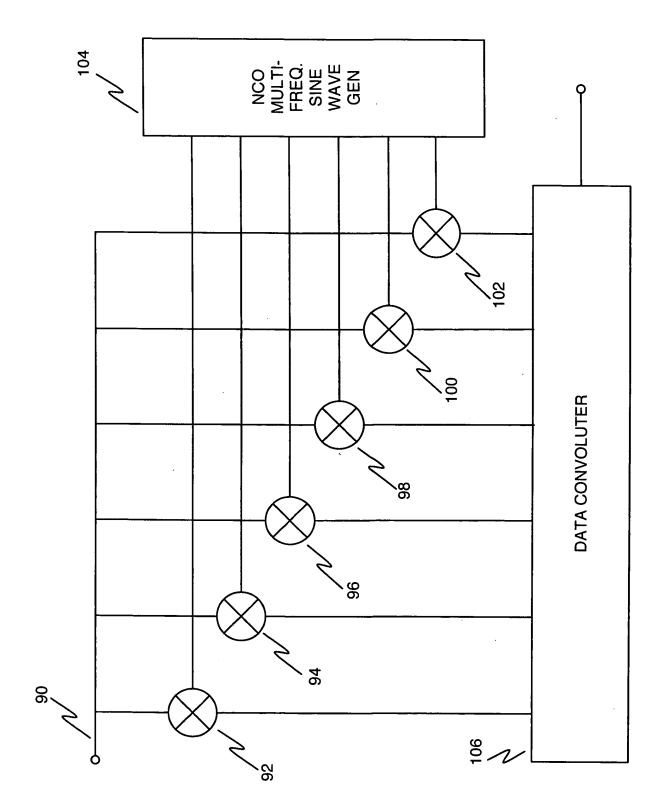
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Docket No.: PIPE-001 Page 8 of 18





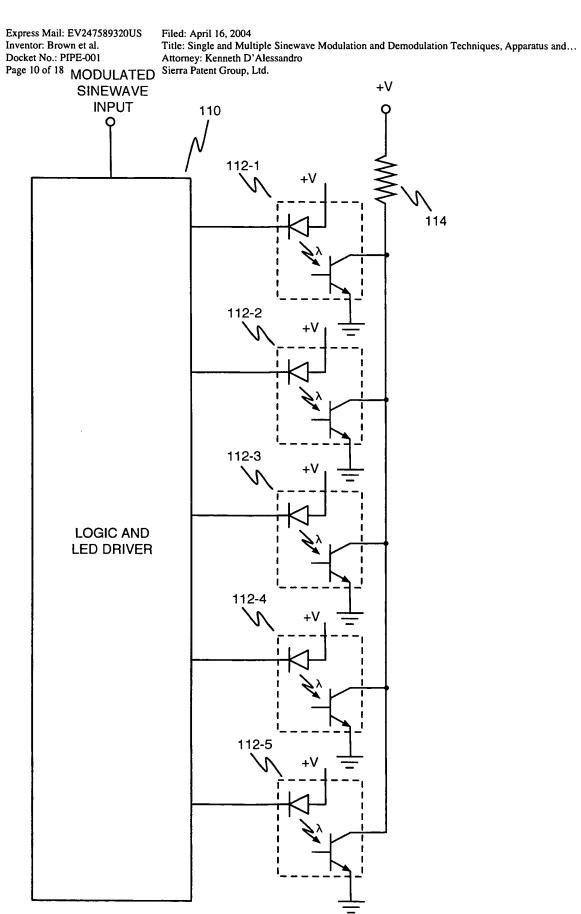
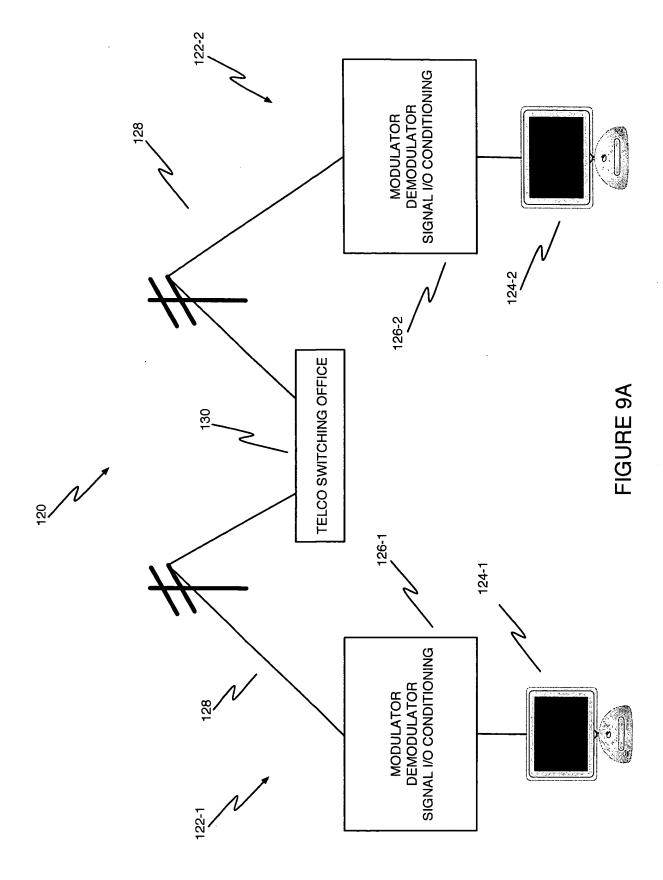


FIGURE 8

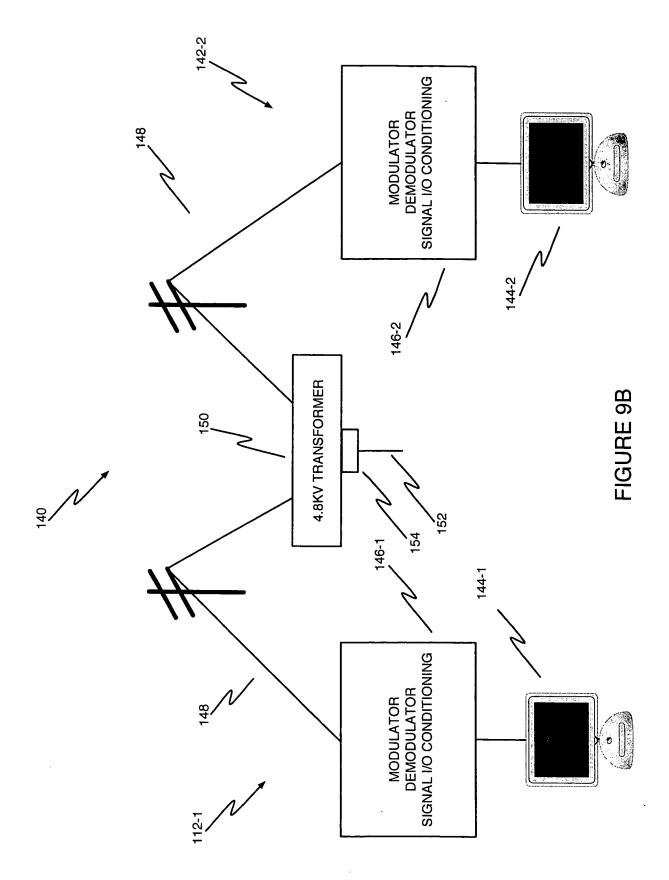
Docket No.: PIPE-001 Page 11 of 18

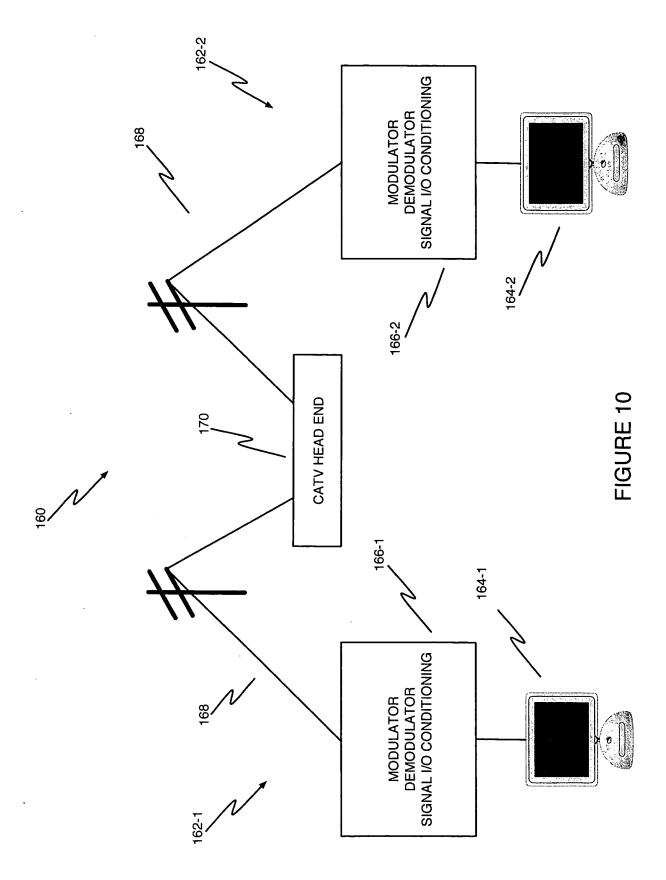
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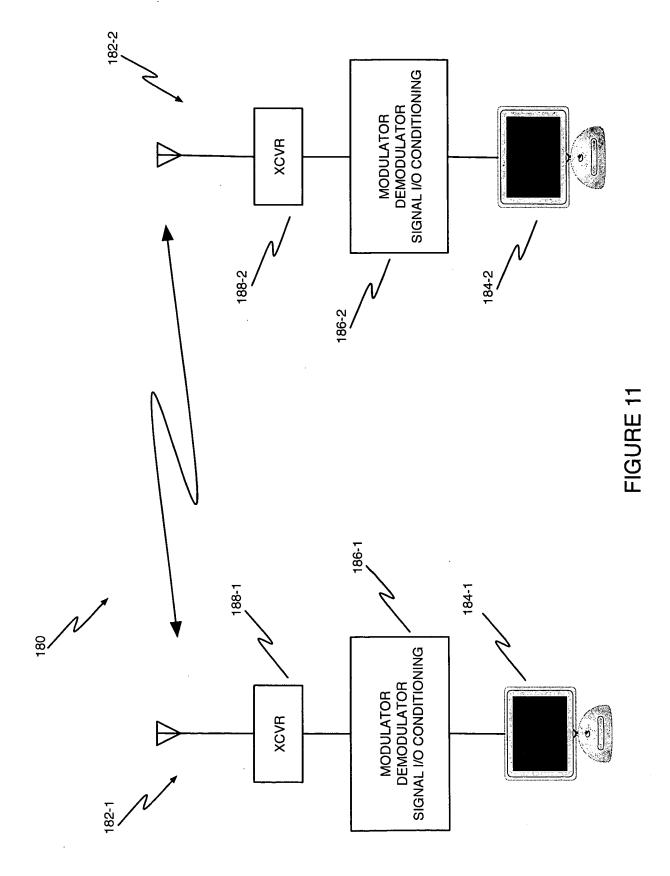
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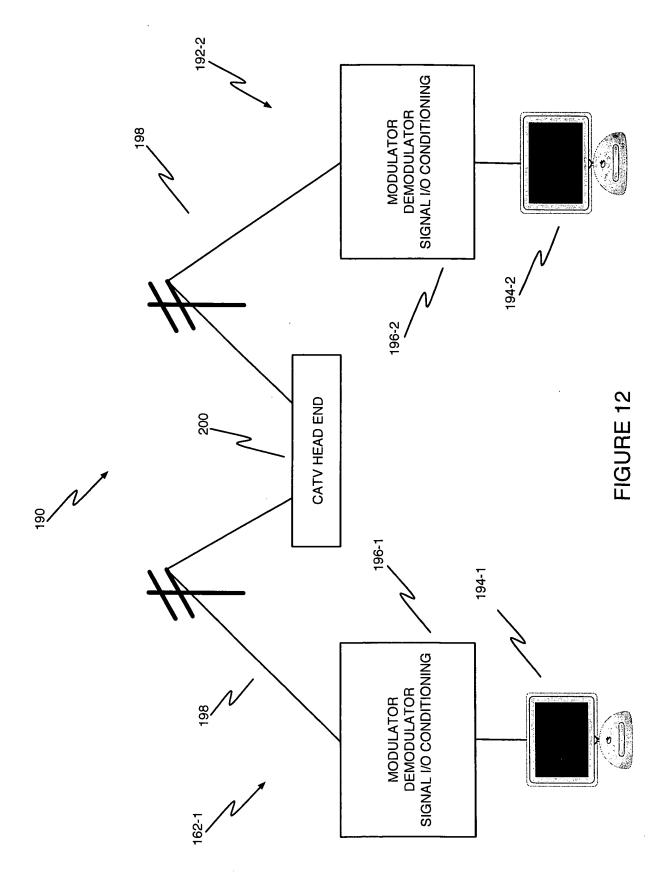


Page 12 of 18

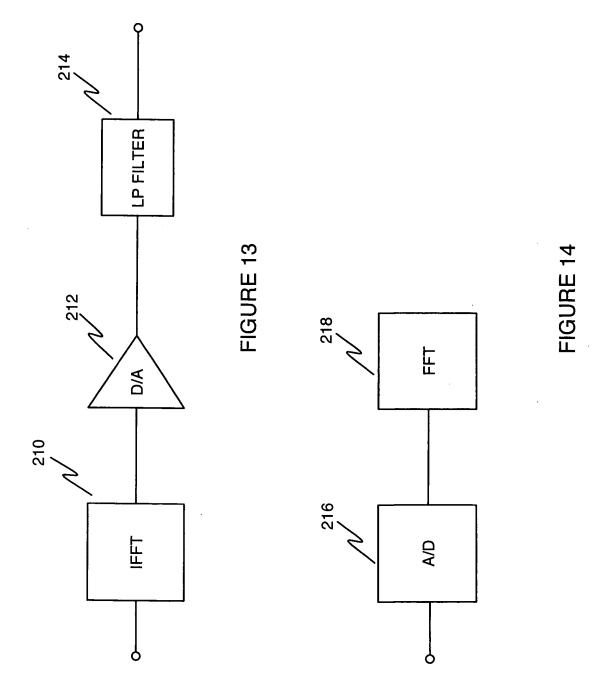








Page 16 of 18



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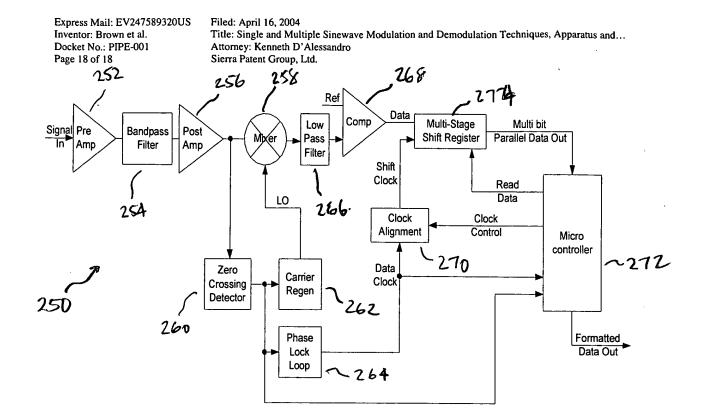
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Page 17 of 18 Sierra Patent Group, Ltd. 220 226 V.90 Modem 232ر Phone Line 238 Interface DSP .222 16 bit Inverse D/A FFT 10/100 Phone Micro 240 Switch or USB Hybrid Controller 2400 Interface DSP 16 bit **FFT** A/D 224 234 228 230 -236 **Timing Generator** 

Switch Control

FIG. 15



Multi-bit Sinewave Receiver Block Diagram

F16,16